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(19) United States

Patent Application Publication (10) Pub. No.: US 2001/0027071 A1 BUMBARGER et al. (43) Pub. Date: Oct. 4, 2001

(54) PROTECTIVE MULTI-LAYERED LIQUID RETAINING COMPOSITE

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(*) Notice: This is a publication of a continued prosecution application (CPA) filed under 37 CFR 1.53(d).

(21) Appl. No.: 09/275,194

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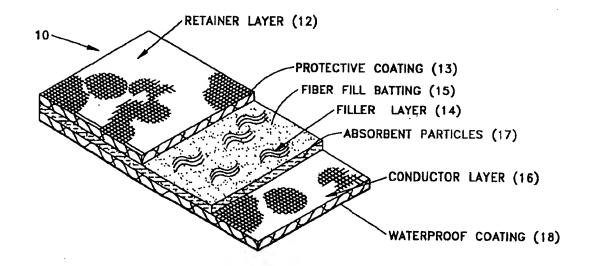
Related U.S. Application Data

(63) Continuation-in-part of application No. 08/947,184, filed on Oct. 8, 1997, now Pat. No. 5,885,912.

Publication Classification

(57) ABSTRACT

A multi-layered composite comprising a protective layer, a retaining layer, a conductive layer and a filler layer intermediate the retainer and conductive layers. The filler layer is impregnated with liquid absorbent particles. A protective layer having specific characteristic for protection against extreme temperatures, physical impacts and the like is specifically disclosed for use in combination with the retainer, filler and conductive layers. The protective layer provides additional protection of the person from catastrophic events such as exposure of a person to fire and/or severe impact such as may be caused by gunfire.



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(54) ELECTRICALLY CONDUCTIVE FABRIC

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(21) Appl. No.:

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Publication Classification

(51) **Int.** Cl.⁷ **B32B 27/12**; B32B 27/04; D02G 3/00

(57) ABSTRACT

An electrically conductive fabric plated with a metal is disclosed wherein a percent fabric surface occupancy of warp as a constituent of the fabric is 90% to 110% and that of weft is 40% to 80%. The electrically conductive fabric is superior in all of resin back leak preventing property, flexibility yarn fray preventing property, electrical conductivity and electromagnetic wave shieldability.

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(12) Patent Application Publication (10) Pub. No.: US 2001/0037972 A1 Quick et al.

(43) Pub. Date: Nov. 8, 2001

(54) FLUID SEPARATING DEVICE

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(21) Appl. No.: 09/825,459

(22) Filed: Apr. 3, 2001

Related U.S. Application Data

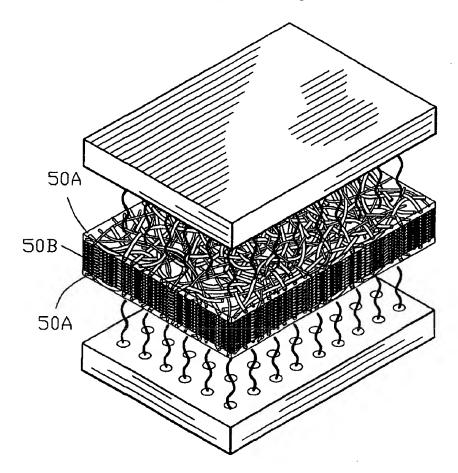
(63) Non-provisional of provisional application No. _ 60/194,376, filed on Apr. 4, 2000.

Publication Classification

210/500.25

(57)ABSTRACT

An improved fluid separating device for filtering a second fluid from a first fluid. The improved fluid separating device comprises a first layer of filter media comprising a sintered matrix of first fibers. A second layer of filter membrane comprises a matrix of second fibers. A third layer of filter media comprises a sintered matrix of third fibers. The first, second and third layers are formed into a lamination with the second layer being interposed between the first and third layers. The second layer has a pore size substantially less than the pore size of the first and third layers for enabling the second fluid to pass through the second layer and for inhibiting-the-first-fluid-from passing-through-the secondlayer for separating the second fluid from the first fluid. The improved fluid separating device is suitable for separating a gas from a liquid as well as separating a gas from a dissimilar gas.



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